NOTES ON SOME WEST AMERICAN CEPHALOPODS.

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As a considerable time has elapsed since the completion of the manuscript for my recent *Review of the Cephalopods of Western North America*, it is not surprising that several new facts have been brought to notice, while some of those already dwelt upon appear to require reconsideration in the light of recent work by other investigators. Hence the following notes.

Polypus apollyon Berry 1912.

It seems fairly doubtful whether all the specimens included with the type of this species in the table of locality data in my report (Berry, 1912*a*, p. 283) are in reality conspecific with one another or belong to recognizable groups which only a greater abundance of well-preserved adult material than is at present available will enable us to separate. In the meanwhile I am inclined to recognize *P. apollyon* as distinct from the true *P. hongkongensis* Hoyle, a view which, if correct, eliminates the latter species from consideration in our fauna.

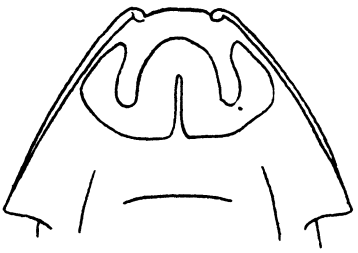

Fig. 1.—*Polypus apollyon*, outline drawing of funnel laid open along the medio-ventral line to expose the funnel organ. × 2. [S. S. B. 81.]

I take this opportunity to give a figure of the funnel organ of one of the specimens from the Coronado Islands in the collection of the University of California [S. S. B. 81].

Polypus pricei new species.

Animal small and rather delicate. Body elongate pyriform, obtusely pointed behind; a decided nuchal constriction separates it from the head; surface everywhere smooth, without visible cirri or papillæ.

Head small, short, flattened, slightly narrower than the body. Eyes very large, rounded, and protruding. Funnel broad, thin walled, truncate at the extremity, the tip reaching but little past the base of the arms.[1]

Fig. 2.—*Polypus pricei*, inner aspect of right ventral arm. × 2½. [S. S. B. 189.]

Arms nearly equal, scarcely twice as long as the body; thick at the base, but delicate and tapering rather rapidly to a tenuous extremity; connected at base by a thin hyaline umbrella extending about equally between them all for perhaps a twelfth of their length; along their outer margins it is continued as a very fragile membrane, becoming obsolete considerably before it reaches the tips. Suckers small, little crowded, much elevated, the first five or six pairs but little displaced, so that they still have the appearance of a single row; the remainder clearly biserial (fig. 2).

Hectocotylus not observed.

Color of specimens preserved in alcohol a very pale brownish-buff everywhere except the region of the eyeball, the body and head irregularly dotted with small brown chromatophores; eyeball bluish-black, with a few very large chromatophores superimposed; two alternating longitudinal rows of large light colored chromatophores decorate the outer surface of each arm.

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[1] Owing to the condition of the specimens I am unable to give either a drawing or an accurate description of the funnel organ. The indications are, however, that it is closely similar in outline to that of *P. californicus* (cf. Berry 1912*a*, p. 286, fig. 3), although relatively somewhat smaller and more anterior in position.

Measurements:

	Type. mm.	mm.
Total length	50	58
Tip of body to base of dorsal arms	22	23
Length of mantle, dorsal	18	18
Length of mantle, ventral	17	18
Width of mantle	10	10
Width of neck	7	6
Width of head across eyes	9	8
Length of head	4	5
Length of right dorsal arm	29	33
Length of left dorsal arm	29	29
Length of right second arm	30	35
Length of left second arm	31	35
Length of right third arm	31	33
Length of left third arm	31	36
Length of right ventral arm	29	32
Length of left ventral arm	29	26+
Length of funnel	8	7
Length of umbrella between dorsal arms	3.5	4
Length of umbrella between ventral arms	4	4

(*Note.*—The arms and umbrella were measured from the edge of the buccal membrane along the inner face.)

Type.—In the Stanford University Collections [S. S. B. 189].

Type Locality.—Off Point Pinos, Monterey Bay, California; four specimens from the stomach of a salmon (*Onchorhynchus tschawytscha*); C. H. Gilbert, June 23, 1911.

Distribution.—Although the type and cotypes are the only specimens now at hand, I feel little hesitation in referring to the present species a juvenile *Polypus* in the University of California Collection described by me in a previous paper (Berry, 1911, p. 303), thus extending its known range as far to the southward as Santa Catalina Island.

Remarks.—*P. pricei* is most conspicuously characterized by the delicate consistency of its tissues, large eyes, constricted neck, very short subequal arms, short hyaline umbrella, elevated suckers, pale coloration, and elongate pointed body, in outline somewhat recalling that of an *Argonauta*. Owing to the inadequacy of the material, I am unable to give a proper estimation of its relationships with species from other geographic regions, but as compared with all other West American and North Pacific forms, it seems clearly distinct. In the key (Berry, 1912*a*, p. 271) the present species would fall nearest to *P. apollyon* (*hongkongensis*), but is certainly

not the young either of that species or of *P. californicus*. Despite their smallness, the four specimens are very nearly of a size, and it may be that they are approximately mature.

The species is named for Dr. George Clinton Price, of Stanford University.

Calliteuthis (Meleagroteuthis) heteropsis new species.

Meleagroteuthis hoylei Berry 1912*a*, p. 305, text figs. 13–16, pl. 50, figs. 1–3; pl. 51; pl. 52, figs. 5–7 (not of Pfeffer 1900, p. 170; 1912, p. 291, pl. 22, figs. 1–8).

Having recently been able to consult a copy of Pfeffer's great monograph of the *Œgopsida* containing a much more detailed description of his *Meleagroteuthis hoylei* than had previously been given, together with an excellent series of figures of the same, I am forced to the opinion that my reference of the *Albatross* Californian specimens to this species was an error and that they represent a nearly allied but unnamed form. As I have already given a careful and full description of these specimens, its repetition is unnecessary here, but it should be added that, as compared with *M. hoylei*, *C. heteropsis* differs especially in the following characteristics:

(1) There is a somewhat greater number of suckers and pads in the fixing apparatus of the tentacles, and these exhibit the following differences in arrangement: in *hoylei* the dorsal series comprises five pads and the same number of suckers in regular alternation, while the ventral and more proximal row beginning at the carpus comprises (according to Pfeffer's figure) 1 sucker, 2 pads, 2 suckers, 1 pad, 2 suckers, 1 pad—a very peculiar order indeed; in *heteropsis* the dorsal series contains 7 pads alternating with an equal number of suckers, while the ventral row commencing at its distal end contains a small sucker, then a larger one, then two smaller pads, then two larger suckers, two pads, two suckers, two pads, and two suckers —all nearly in the same line, but occurring in pairs in regular alternation.

(2) There is no evidence whatever of the presence of cartilaginous tubercles, either along the medio-dorsal line, along the arms, or anywhere else.

(3) The arms are relatively stouter.

(4) The number of teeth on the horny rings of the sessile arm suckers is much smaller (7–8 instead of 20), and these are apparent only upon the upper half of the ring.

In some respects the present species approaches the recently described *C. asteroessa* Chun, but is probably sufficiently distinct.

Chun (1910, p. 170) has united *Meleagroteuthis* to *Calliteuthis* Verrill 1880, as a subgenus, a proceeding with which the writer is in accord.

Gonatus magister new species.

Gonatus fabricii (?) Berry 1912*a*, p. 310, pl. 52, figs. 1–2; pl. 53; pl. 54, figs. 1–4; pl. 55, figs, 1, 3–7 (not of Steenstrup *et al.*).

In the work cited I referred a number of small decapods from the California coast to the widespread *Gonatus fabricii*, and somewhat doubtfully included with them two large squids from the Puget Sound Region. Since that time, through the kindness of Miss A. L. Massy, I have received a specimen of the true *G. fabricii* from the Irish coast, and a comparison with this now leads me to consider the Puget Sound specimens, at least, to represent a new species.

Owing to the detailed description of these specimens I have already given, it is necessary here merely to give a brief résumé of the features which appear peculiar to them. As compared with the Irish specimen, they are much larger, heavier, and more massive in every way. The fins are over one-half the length of the body, are more obtusely angled, and are scarcely at all produced at the extremity, while at the same time they appear to be thicker, more firmly attached to the body, more widely separated, and with less developed anterior lobes.

The most conspicuous and important difference, however, is to be found in the structure of the tentacular arms, for the clubs are not only differently shaped, but their inner faces are completely clothed by a multitude of fine suckers quite unaccompanied by hooks or even any traces of the same. I have carefully re-examined the specimens on several different occasions and nowhere can find the slightest scars to indicate that such structures might once have been present. In the region corresponding to their position in *G. fabricii*, there is not even a bare space ("einer glatten länglichen Central-Fläche" of Middendorff) nor do the suckers extend so far down the stalk as in that species. The fixing apparatus is very simple and inconspicuous, comprising some 23–25 small marginal pads alternating with a similar number of suckers on the club proper, besides a number more extending down the stalk. These suckers are all minute, none of them conspicuously larger or otherwise differentiated from the others, and there are no accessory ridges connected with them as in *G. fabricii*. The contrast with either the excellent figures of Steenstrup (1881, pl. 1), or the brief though clear description given by Middendorff (1849, p. 515) for his *Onychoteuthis*

kamtschatica, or the specimen sent me by Miss Massy, is throughout very marked. It should be noted that the gross dimensions of Middendorff's specimen correspond very fairly to those of the individuals before me, so that the differences do not seem explicable on the ground of age.

Type.—Cat. 2,084 of the Invertebrate Series, Stanford University Collections [S. S. B. 88].

Type Locality.—Puget Sound, Washington.

Whether the young specimens taken by the *Albatross* are true *G. fabricii* or a young stage of the present species is still a matter of doubt.

Onychoteuthis banksii (Leach, 1817) Férussac, 1826.

This species has recently been obtained off Newport, California (Berry, 1912, p. 83, figs. 44–46). I had previously overlooked the fact that Middendorff (1849, p. 516, pl. 12, fig. A) describes a much smaller specimen from Bering Sea as *O. Bergii* Lichtenstein. He also mentions an *Octopus* (*Polypus*) from the same region—"vielleicht *Oct. granulatus* Lam'k."

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